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FEBRUARY 15, 1988

CableVision

INFORMATION AND ANALYSIS FOR CABLE TELEVISION MANAGEMENT

DANIELS OPTS OUT

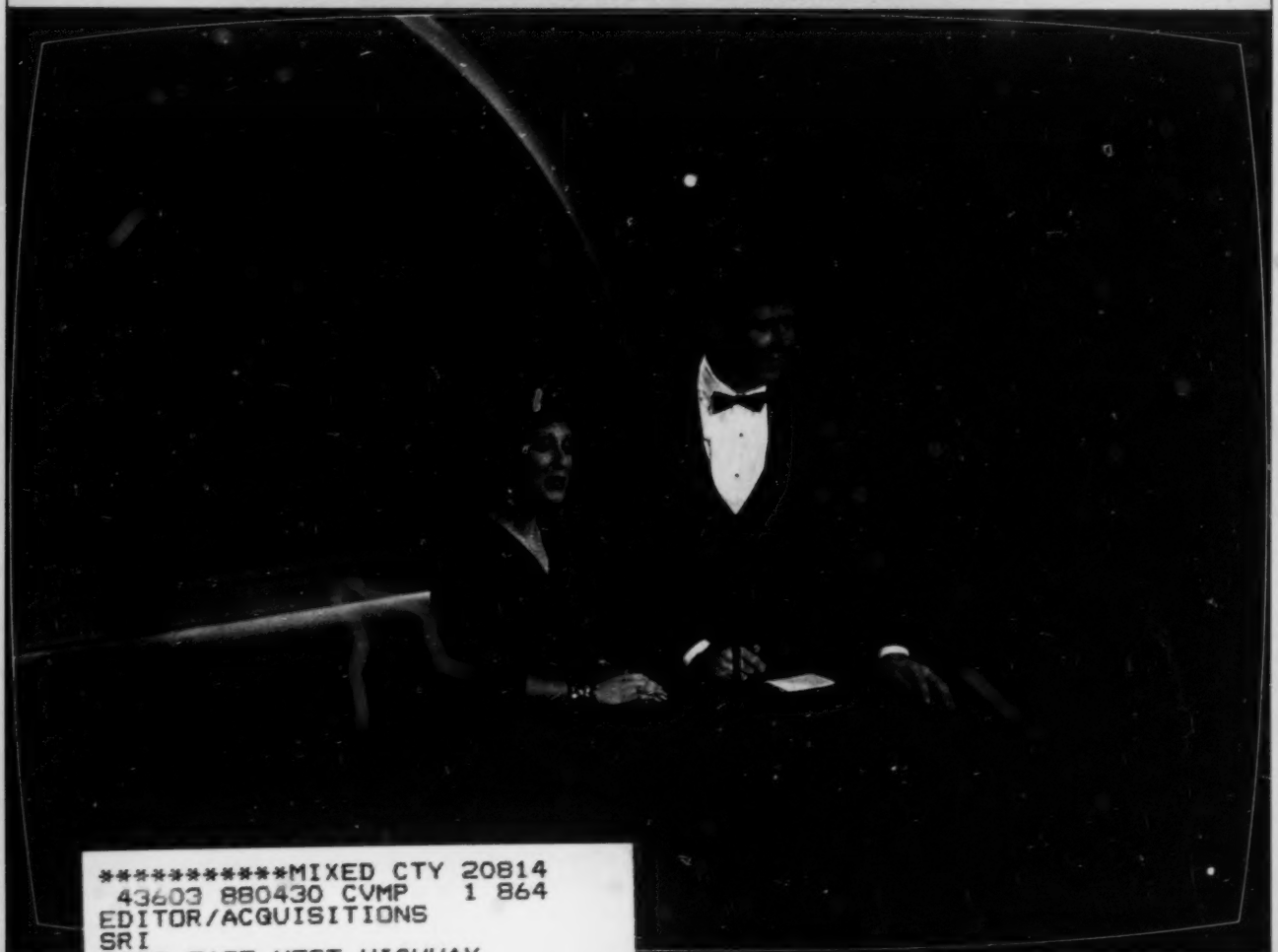
PPV'S URGE TO MERGE

ON THE PROWL WITH JEFF MARCUS

BEYOND 'IF' TO 'HOW' WITH TELCOS

$1.4 BILLION IN CONSTRUCTION FORECAST

A NIGHT OF SHOOTING STARS: THE NINTH ANNUAL ACE AWARDS



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CableVision

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Bearing out our earlier projections, the number of fiber-to-the-home projects by telcos is proliferating, doubling from just a few months ago. At least 10 such last-mile fiber projects are planned or in progress.

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He's often talked about Rodeo Drive, but now NCTA head James Mooney ventures into the heart of Hollywood to foster an emerging detente between cable and the production community. And more summit meetings are planned.

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The pay-per-view industry is a great business, except none of the five or six players are making much money. Merger talks are rampant, with attention now focusing on a possible Viewer's Choice—Home Premiere Television combination.

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Last year was the Year of the Rebuild as cable construction began a boom period that caught many off guard. And in our 13th annual survey of the industry, we find there should be no letup ahead, with 26,090 miles of new plant and 60,614 miles of replacement plant forecast.

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Sometimes small things mean a lot, and a Florida lawsuit over a cable operator's access to easements in private developments certainly fits the bill. The case could become pivotal in the overbuild issue.

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Cable always has attracted savvy entrepreneurs, and among the new generation of such big-play strategists is Jeff Marcus, who learned acquisitions at CEA, investment style from TCI, and now is poised to join the major leagues of MSOs.

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ACEs up their sleeve 26
The Ninth Annual ACE Awards were bigger and glitzier than ever and produced many surprises. Not surprising, though, was HBO's continued dominance and the many nods toward shows with high production values. We review the telecast and list the winners. *—Photo by Berliner Studio.*

BETWEEN THE LINES

Television torch passes to 'a word from our sponsor'

The Great Communicator, it seems, has been excommunicated by the three broadcast networks. Last week, for the second time in four months and the third time in about a year and a half, the Big 3 all refused to interrupt prime time programming to relay a presidential address.

Such telling detail was not lost on *The New York Times*, which observed in an editorial page item that "Cable News Network was the only major TV network to carry" the president's speech.

Let's not quibble with the good, grey *Times*, but another cable network, C-SPAN, also carried the address from the Oval Office, albeit on tape delay as it usually does with such speeches from the White House. Instead let's move on to the point, pausing only to do a double-take (heavens to Betsy!) at *The Times* bending to knight CNN as a "major TV network."

The point is, as *The Times* correctly observes, that "a passing of the torch seems under way. With the three majors essentially in the entertainment business, it will be upstarts such as CNN, C-SPAN and conceivably some local public stations that will become the essential source of televised news coverage."

Now there isn't any law requiring the broadcast networks to honor a president's request for free air time to address the nation. Such decisions are made solely on the news value of the speech to be made, although how that can be done before the president opens his mouth seems a mystery. According to press reports, news executives at ABC, NBC and CBS decided that because the subject of the speech was aid to the Nicaraguan contras, a topic that has been rehashed seven ways to Sunday, President Reagan wasn't going to be making any news. Keep in mind, though, that this is a president who occasionally departs from the text; his open-mike remark that "the bombing starts in five minutes" comes to mind.

Let's also be mindful of the fact that presidential addresses often play havoc with the networks' programming schedules. These speeches typically run 20 minutes or longer. Then, because they usually are of a partisan nature, the other party must be given time to respond. That pretty much can wipe out a big block of prime time, depriving the nation of *Who's the Boss* on ABC, *Matlock* on NBC and CBS's inspection of the Denver airport.

Yes, a passing of the torch in television news is occurring, and cable is holding that torch high. But *The Times* did get one thing flat wrong. The Big 3 aren't "essentially in the entertainment business," they're in the advertising business. It was their $200,000 30-second advertising spots that couldn't be bothered.

With our next issue, *CableVision* adds a new editorial section: Operations. In this regular feature, we will focus on issues important to the day-to-day functioning of cable systems, including office automation, billing, customer service, training, fleet leasing and many others. You have expressed interest in such coverage, and we hope that in the Operations section you will find valuable tips, learn how the other guy solved a problem, see how you can save money. If you have a story idea for the Operations section, call me at (212) 213-3110.

—Steve Tuttle
Editor and Associate Publisher

CableVision

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February 15, 1988
Volume 12, Number 37

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INTERNATIONAL THOMSON COMMUNICATIONS INC.

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CableVision (USPC 547-410) (ISSN 0361-8374) is published biweekly by International Thomson Communications Inc., 600 Grant Street, Suite 600, Denver, Colorado 80203 -or- P.O. Box 5208-TA, Denver, CO 80217. Feb. 15, 1988, Volume 12, Number 37. Subscription price: 1 year, $46.00; 2 years, $82.80. Outside USA 1 yr.-$124, 2 yr.-$205, 3 yr.-$274. PREPAYMENT IN U.S. FUNDS ONLY! Second-class postage paid at Cleveland, Ohio and additional mailing offices. POSTMASTER: Please send address changes to, *CableVision*, 600 Grant St., Suite 600, Denver, Colorado 80203.

ABP BPA

Pay-Per-View Supply Chart

February

Back to the Beach (2/6) — Source: Paramount
MPAA Rating: PG — Running Time: 92 mins.
Cast: Annette Funicello, Frankie Avalon, Lori Loughlin.

The Big Easy (2/24) — Source: HBO Enterprises
MPAA Rating: R — Running Time: 101 mins.
Cast: Dennis Quaid, Ellen Barkin.

Deadline (2/18) — Source: Skouras
MPAA Rating: R — Running Time: 99 mins.
Cast: Christopher Walken.

Dirty Dancing (2/11) — Source: Vestron
MPAA Rating: PG-13 — Running Time: 100 mins.
Cast: Jennifer Grey, Patrick Swayze, Cynthia Rhodes.

Dolls (2/27) — Source: Vestron
MPAA Rating: R — Running Time: 91 mins.
Cast: Stephen Lee, Guy Rolfe, Hilary Mason.

Eat the Peach (2/1) — Source: Skouras
MPAA Rating: NR — Running Time: 95 mins.
Cast: Eamon Morrissey, Stephen Brennan.

The Fourth Protocol (2/1) — Source: Lorimar
MPAA Rating: R — Running Time: 118 mins.,29 secs.
Cast: Micheal Caine, Pierce Brosnan, Joanna Cassidy.

Good Morning Babylon (2/27) — Source: Vestron
MPAA Rating: PG-13 — Running Time: 118 mins.
Cast: Vincent Spano, Charles Dance, Greta Scacchi.

Hot Pursuit (2/6) — Source: Paramount
MPAA Rating: PG-13 — Running Time: 95 mins.
Cast: John Cusack, Robert Loggia, Wendy Gazelle.

In the Mood (2/14) — Source: Lorimar
MPAA Rating: PG-13 — Running Time: 98 mins.
Cast: Patrick Demsey, Talia Balsam, Beverly D'Angelo.

Jane and the Lost City (2/25) — Source: HBO Enterprises
MPAA Rating: R — Running Time: 92 mins.
Cast: Sam Jones, Maud Adams.

Jaws-The Revenge (2/4) — Source: Universal
MPAA Rating: PG-13 — Running Time: 90 mins.
Cast: Lorraine Gary, Lance Guest, Mario Van Peebles.

Kandyland (2/25) — Source: HBO Enterprises
MPAA Rating: R — Running Time: 93 mins.
Cast: Charles Laulette, Kim Evenson.

Mannequin (2/1) — Source: 20th Century-Fox
MPAA Rating: PG — Running Time: 90 mins.
Cast: Andrew McCarthy, Kim Kattrall, Estelle Getty.

Nadine (2/18) — Source: Tri-Star
MPAA Rating: PG — Running Time: 82 mins.,47 secs.
Cast: Jeff Bridges, Kim Basinger, Rip Torn.

No Way Out (2/3) — Source: Orion
MPAA Rating: R — Running Time: 114 mins.
Cast: Kevin Costner, Sean Young, Gene Hackman.

Predator (2/17) — Source: 20th Century-Fox
MPAA Rating: R — Running Time: 107 mins.
Cast: Arnold Schwarzenegger, Carl Weathers, Eltidia Carrillo.

March

An American Tail (3/10) — Source: Universal
MPAA Rating: G — Running Time: 81 mins.
Cast: Animated.

Beverly Hills Cop (3/9) — Source: Paramount
MPAA Rating: R — Running Time: 103 mins.
Cast: Eddie Murphy, Judge Reinhold, Brigitte Nielson.

Big Shot (3/31) — Source: Lorimar
MPAA Rating: PG-13 — Running Time: 91 mins.
Cast: Risky Busker, Darius McCrary.

The Big Town (3/30) — Source: Columbia
MPAA Rating: R — Running Time: 110 mins.
Cast: Matt Dillon.

Born in East L.A. (3/9) — Source: Universal
MPAA Rating: R — Running Time: 85 mins.
Cast: Cheech Marin, Paul Rodriquez, Daniel Stern.

Garbage Pail Kids (3/10) — Source: Paramount/Atlantic
MPAA Rating: PG — Running Time: 100 mins.
Cast: MacKenzie Astin.

Good Morning Babylon (3/24) — Source: Vestron
MPAA Rating: PG-13 — Running Time: 118 mins.
Cast: Vincent Spano, Charles Dance, Greta Scacchi.

Hell Raiser (3/31) — Source: HBO Enterprises
MPAA Rating: R — Running Time: 90 mins.
Cast: Andrew Robinson, Claire Higens.

Hope and Glory (3/11) — Source: Columbia
MPAA Rating: PG-13 — Running Time: 113 mins.
Cast: Sarah Miles, David Hayman.

Living on Tokyo Time (3/20) — Source: Skouras
MPAA Rating: NR — Running Time: 83 mins.
Cast: Monako Ahashi, Ken Nakagawa.

North Shore (3/10) — Source: Universal
MPAA Rating: PG — Running Time: 96 mins.
Cast: Mett Adler, Gregory Harrison, Mia Peeples.

Revenge of the Nerds II (3/24) — Source: 20th Century-Fox
MPAA Rating: PG-13 — Running Time: 91 mins.
Cast: Robert Carradine, Curtis Armstrong, Larry E. Scott.

Slammer Girls (3/1) — Source: Vestron
MPAA Rating: R — Running Time: 82 mins.
Cast: Tally Brittany, Jeff Eagle.

Steel Justice (3/10) — Source: Paramount/Atlantic
MPAA Rating: R — Running Time: 92 mins.
Cast: Martin Kove, Sela Ward, Ronnie Cox.

The Watcher in the Woods (3/3) — Source: Disney
MPAA Rating: G — Running Time: 83 mins.,16 secs.
Cast: Lynn-Holly Johnson, Bette Davis, David McCallum.

Note: Running times are approximate.
NR indicates film not rated by MPAA.
* Unavailable at presstime.

Film information provided to International Thomson Communications Inc. by distributors.

Pay-Per-View Services Profile

	LAUNCH	DELIVERY	ENCRYPTION	PROGRAMMING	SUBSCRIBERS
Cable Video Store	April 1, 1986	Satcom 4, tr. 16	VideoCipher II	Movies, how-to's, special events 24 hours per day, approx. 50 titles per month	Currently serving 16 MSOs nation-wide (40,000 Impulse addressable subscribers)
Home Premiere Television	December 4, 1987	Galaxy III, tr. 16	VideoCipher II	First-run movies, special events.	Available in systems serving 1,000,000 addressable subscribers)
Private Ticket	July 1985	Standalone	None	Two and one-half hours nightly. One original title, plus up to two licensed films edited for Playboy.	Available in systems serving 185,000 subs (139,000 addressable).
Request Television	November 27, 1985	Galaxy 1, tr. 12	VideoCipher II	Min. of four major motion pictures per week over 14 day cycle, special events	Available in systems serving 3.8 million subs. (2.6 million addressable).
Telstar Channels	June 5, 1986	Spacenet 2, tr 1,3,11,23	VideoCipher II	Channel 1: 2 movies per week. Channel 2: Cult favorites, childrens and others. Channel 3: Additional plays of movies 1 & 2 (frequency channel)	Available in systems serving 160,000 subs (60,000 addressable).
Viewer's Choice	November 26, 1985	VC-1: Galaxy III, tr. 21. VC-2: VideoCipher II Galaxy III, tr. 18		Channels I & II. First-run movies, special events	Available in systems serving over 3 million subs.

Construction boom won't ease in '88 with $1.422 billion in outlays forecast

Year of the Rebuild seen continuing, pushed by strong demand for 550 MHz, addressability

By Roger Brown

Like a hulking giant rising up after years of slumber, the cable television construction marketplace woke up hungry in 1987. No longer encumbered with rate regulation as of Jan. 1, operators were free to set rates the market would bear.

That paid off handsomely for hardware manufacturers, suppliers, distributors and construction firms as operators slated thousands of miles of rebuild, upgrade and newbuild projects, made economically possible by the rise in rates. From full-line distributors to coaxial cable manufacturers, 1987 has been referred to as the best ever and often called The Year of the Rebuild. According to *CableVision*'s 13th annual survey, the industry spent $1.253 billion on construction services and hardware, building out nearly 22,000 miles of new plant and rebuilding or upgrading almost 43,000 more. (See p. 58 for chart of complete survey results.)

Indeed, it was the biggest capital outlay since the heady days of 1983, when the industry shelled out $1.488 billion on construction. In fact, 1987 was so busy it caught a lot of pundits off guard. Consequently, equipment lead times grew and construction firms suffered from a lack of skilled manpower, forcing MSOs to push back some projects into 1988. Indications are that the industry could have met last year's forecast of $1.423 billion had vendors and suppliers been ready for the increased activity.

However, because so many projects were started late or ended the calendar year incomplete, 1988 is projected to be just as busy as 1987. According to the forecast, MSOs plan to build 26,000 miles of new plant and rebuild or upgrade another 60,000 miles. Total expenditures of $1.422 billion are anticipated, with the lion's share of the money going into new electronics and coaxial cable as operators rush to increase channel capacities and replace old, outdated equipment with new gear to improve picture quality.

'Another strong year'

"We're forecasting another real strong year for us," said Gordon Halverson, executive vice president of the CATV Group at Anixter. The previous 12 months were the best in company history and more of the same is seen for 1988, Halverson said.

Steve Necessary, distribution and subscriber systems marketing manager at Scientific-Atlanta, concurred. "It looks like another good solid year as operators continue to respond to deregulation and work to head off competitive forces," he said. Necessary went so far as to predict a 5 percent to 10 percent uptick in activity in 1988.

But Steve Coffey, marketing manager at Comm/Scope, isn't so sure. He expects 1988 activity to level off and then slacken slightly as operators complete some rebuild programs and concentrate more on electronic upgrades. "But then, we missed last year," he said. "We didn't expect it to be as good as it turned out to be."

The one area that likely will see some falloff from last year's high sales level is subscriber equipment. Converter manufacturers were direct beneficiaries of deregulation as scores of

See **Construction**, *page 50*

Construction, *from page 46*

operators collapsed service tiers and purchased hundreds of thousands of "plain" converters designed to accommodate the additional channels.

Now that most of that has been completed, non-addressable boxes are predicted to fall way off while addressable units gain in popularity, driven by operators who want to deliver pay-per-view events to subscribers. In fact, according to the survey, sales of addressables will amount to about $330 million in 1988, a sign that the converter market continues to hold its own even as sales of "cable-ready" televisions and video cassette recorders climb.

A mix of traditional and new market forces is driving the rebuild and upgrade market to such a high level in 1988. The traditional forces consist of the predictable ones, including equipment age, the quest for additional channel capacity and the routine refranchising cycle of systems built in the early and mid 1970s. But included in the mix this year are growing pressures exerted by competitive forces outside the cable industry and the operators' desire to adapt to the development and implementation of emerging technologies.

The 550 standard

By and large, operators are finding that nothing short of 450 MHz equipment will satisfy their hunger for more channels. In fact, the desire for more bandwidth is forcing a number of complete rebuilds because, depending upon the age and capacity of the plant, 450 MHz can't always be reached via a simple upgrade, where new electronic modules are "dropped in" to existing amplifier mainstations.

Gordon Halverson

Manufacturers of distribution gear note that operators are rebuilding with 450 MHz—and, increasingly, 550 MHz—gear to be certain they won't need more bandwidth in the next five years. According to John Hastings, national marketing manager for CATV products at C-COR Electronics, 550 equipment is gaining popularity with engineers who are concerned that high definition television and other emerging technologies may one day come to cable and consume more bandwidth than standard NTSC channels—and they want the room to handle it.

"They're looking down the road," said Hastings of the operators. "They want to play it safe. They don't want to rebuild again in four or five years." Keith Weil, manager of products and marketing at Magnavox, agreed. "You see some guys going to 550 MHz in anticipation of HDTV's arrival," he

See **Construction**, *page 54*

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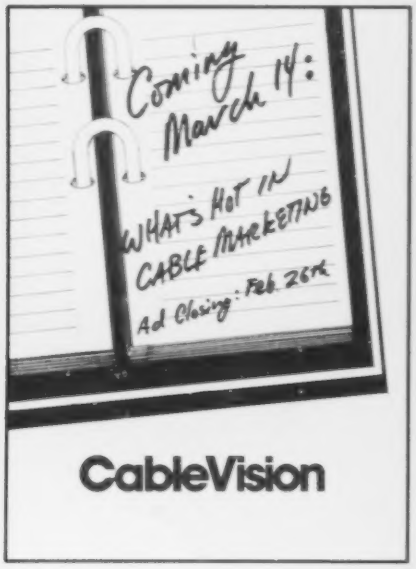

Construction, *from page 50*

said. And S-A's Necessary predicts that 550 MHz gear will account for 10 percent to 15 percent of the total market this year.

At Comcast, all rebuilds are utilizing at least 450 MHz gear, according to Greg White, Comcast's director of construction, because "the incremental cost of going up from 400 MHz is small," he said. "You might as well give yourself the added cushion of the additional channels because if you need them in another five years, the costs (to add them later) would be absolutely hellacious."

White acknowledged that 550 MHz hardware is gaining favor with him, too. Comcast now is building its portion of Philadelphia to 550 MHz and is "looking at using it elsewhere," he said. "There are people out there who say 40 channels is more than you'll ever need but clearly there are plenty of MSOs who carry fully-loaded 52-channel systems. We like to have some security and extra channels that are unused."

Lots of reasons to rebuild

A lot of rebuilds also are being forced by operators who want to expand channel capacity but discover that the old coaxial cable cannot accommodate the higher frequencies. "Technology often obsoletes cable before age does," said Jack Forde, president of Times Fiber Communications. Back in the '70s, when bandwidth topped out at around 300 MHz, the usable spectrum was limited to just above that figure,

Steve Necessary

said Comm/Scope's Coffey. So now that 450 MHz is the standard a lot of coax has to be changed out.

Refranchising negotiations, coupled with concern about overbuilds by competitors, also is fueling a lot of construction activity, according to a number of industry observers. Telephone companies are exerting plenty of muscle in Washington in an attempt to enter the cable business while operators scurry to get their plants in shape in case the political pendulum should swing in the opposite direction.

"Operators are coming in and doing a lot of amplifier and line extender upgrades because of the pressure of overbuilds," said Chris Sophinos, president of Midwest CATV, a distributor of hardware. "The threat of overbuilds is there and operators need to rebuild to 450 or 550 MHz when the plant is in perfectly good shape," said Harry Wahl, vice president of turnkey sales at Cable Services Co.

At Cox Cable, the '88 budget calls for more than 500 miles of newbuild, more than 1,000 miles of rebuild and a heavy upgrade schedule—all driven by franchise renewal pressures and the need for more channels, said Alex Best, vice president of engineering. "We want to be sure we won't get into a situation where we would be a target for an overbuild."

It's going to be a busy year at United Cable Television as well. With two rebuilds already underway and two more to start soon, the total United construction nut will be 30 percent newbuild and the rest evenly divided between rebuilds and upgrades, said Don Karell, corporate construction manager.

But for those operators who have the foresight to upgrade their systems to state-of-the-art, just getting the equipment is often a struggle. A number of MSOs and distributors are reporting long lead times for feedforward, power doubling and other electronics utilizing advanced technology. Others are finding it difficult to locate strand, traps and certain types of taps in sufficient quantities to satisfy immediate demand.

"There's no question that delivery dates from the date of order are at least 30 days extended from what they were last year at this time," making lead times as long as 60 to 90 days, said Tom Polis, executive vice president of Communication Construction Group.

In their defense, hardware vendors are making an effort to catch up to the demand but are wary of ramping up their production schedules should the market flatten out. The memories of

John Hastings

1983-84, when so many vendors were caught with excess inventory, are still fresh in their minds.

"It's been a race all year long to keep up," said C-COR's Hastings. The electronics firm has hired back a number of employees in anticipation of the increased demand and is trying to catch up. Scientific-Atlanta has expanded its production capabilities and reports lead times of six to eight weeks, according to Necessary. Magnavox is targeting 30-day delivery times and at Zenith, demand has caught up with capacity, said Vito Brugliera, vice president of marketing and product planning for the cable products division.

In fact, technological advances actually have contributed to the longer lead times, said Bob Young, director of product marketing for Jerrold's distribution systems division. "In the past it was easier" to keep up because everything used conventional technology. But now with feedforward, power doubling and quadra power electronics available, "the combinations have taken a simple product and made it much more complex," said Young. Consequently, Jerrold has to forecast much more carefully to avoid building excess inventory of the wrong product.

Holding back for fiber

However, not everyone is on the rebuild bandwagon. Some operators are showing reservations about investing in huge amounts of new coax and electronics because of unanswered questions about the future of fiber optics and HDTV. American Television and

See **Construction**, *page 60*

Construction forecast

New plant construction (in miles)

	1987	1988
Underground	7,412	8,714
Aerial	14,463	17,376
Total	**21,875**	**26,090**

Estimated costs, newbuild construction ($ in thousands)

Antennas and towers	$ 2,752	$ 3,475
Microwave equipment	5,615	7,091
Headend equipment	16,734	21,133
Line amplifiers	29,899	37,757
Cable—trunk and feeder	48,381	61,098
Cable—drop	31,349	39,589
Taps and outlets	45,294	57,200
Traps	15,396	19,442
Earth stations	5,392	6,809
Commercial insertion equipment	6,991	8,829
Other studio and mobile production gear	15,246	19,254
Construction services (design, make-ready, etc.)	10,822	13,666
Construction labor and equipment	138,003	174,276
Total	**$371,874**	**$469,619**

Replacement Plant construction — upgrades and rebuilds (in miles)

Underground	11,418	16,212
Aerial	31,462	44,402
Total	**42,880**	**60,614**

Estimated costs, replacement plant construction ($ in thousands)

Antennas and towers	$ 4,665	$ 6,595
Microwave equipment	6,997	9,892
Headend equipment	21,021	29,718
Line amplifiers	66,881	94,593
Cable—trunk and feeder	73,295	103,621
Cable—drop	19,884	28,069
Taps and outlets	30,379	42,949
Traps	10,029	14,179
Construction labor and equipment	58,397	82,559
Total	**$291,548**	**$412,175**

Estimated costs, subscriber equipment ($ in thousands)

Converters, non-addressable	$268,396	$189,320
Converters, addressable	303,404	329,959
Off-premise addressable systems	N/A	N/A
Add-on components (VCR interface, FM hookup, remotes, impulse PPV gear, etc.)	17,924	21,637
Total	**$589,724**	**$540,916**

Grand Total	**$1,253,146**	**$1,422,710**

The results of this survey are derived from a sampling of MSOs and manufacturers, and are estimates based upon information supplied to *CableVision*. All numbers and company references have been held in strict confidence.

Construction, *from page 54*

Communications, the second-largest MSO, often has stated publicly its intention to do upgrades instead of rebuilds. "For some time I've been an advocate of avoiding rebuilds whenever possible because they're so damned inefficient and expensive," said Jim Chiddix, vice president of engineering. "We believe it even more strongly now that we see how fiber may help us in the future."

ATC has been extensively researching the feasibility of installing fiber "backbones" in its larger systems to reduce the number of amplifiers in cascade, which improves plant performance, increases reliability, lowers maintenance costs and increases bandwidth. The system probably is several months away, but ATC stands poised to use it and won't invest in coax where it doesn't have to, said Chiddix.

Although they won't go as far as ATC's position, a number of other operators admit that developments in emerging technologies like fiber and HDTV nag at their consciences. But because so many questions are unanswered, those systems that need to be rebuilt are getting immediate help.

All the attention fiber is getting has forced Cox engineers to be more conservative in their decision-making, said Best. "The hype about fiber is being driven by concern that the phone company is getting ever so close to having fiber in the home," said Best, "and the cable industry is scared that we'll be caught with an old technology that can't compete.

Greg White

"The one thing that all the hype has done to Cox is there is a hint of more conservatism," added Best. The engineering staff is now finding situations where an upgrade might be a better financial decision than a rebuild. "In those cases, we'll probably upgrade to 400 MHz rather than rebuild to 550 MHz even though we know we can fill all 54 channels," Best said.

"We're seeing a small reduction in demand because of the wait-and-see attitude," said Jack Forde, president of Times Fiber Communications. "But you know what? They (MSOs) don't know what they're waiting for, so how do you know how long to wait? By delaying, you increase the appetite of the guy who wants to do an overbuild."

Regardless of its eventual use, it is clear that fiber is gaining prevalence in point-to-point applications, such as the delivery of satellite signals from a downlink to a headend site. Contractors have noticed an increased interest in fiber optics and some are even adding personnel with fiber installation experience.

"If there's any change from last year, I think it's the input of a new (fiber) technology," said Polis. "A lot of people are, at the very least, designing their systems for eventual fiber implementation."

Cable Services' Wahl is bullish about fiber's potential in CATV. "We're getting ready for the day when fiber takes over," he said. "It won't be in 1988, but we think that toward the end of the decade and into the '90s that fiber will be a major force."

In addition to providing cost savings by precluding amplifiers, delivery of signals via fiber will increase a system's performance parameters, noted Chiddix of ATC. And this year, more than most, better pictures is the goal of every MSO worried about competition from VCRs, fiber and HDTV.

"With more definition, degradation of the pictures is going to be a more important consideration," said Dave Willis, director of engineering at TeleCommunications Inc. "So I think it tends to push up the performance parameters you design for. You want better carrier-to-noise ratios and lower intermods (distortions in the picture), among other things."

"The quality issue became dramatically more critical in 1987," said Anixter's Halverson, "and we expect it to be even more important in 1988." He noted that sales of the Raychem drop connector, which sells for about four times as much as a low-end F-connector, grew exponentially as operators became concerned about signal leakage and committed to delivering better pictures. "And it's not just F-fittings—people are using cable with higher braid content and better shielding, too," said Halverson.

'By delaying, you increase the appetite of the guy who wants to do an overbuild.'

—Jack Forde, Times Fiber Communications

But finding quality construction personnel is getting tougher, according to Polis, who has found it difficult to find skilled splicers. "Retrofits (rebuilds) are splicing intensive," he explained. "You're dealing with active plant and you have to do a lot of miles in a day. So you have an extensive use of the splicing talent that's available and there's just not as much as there used to be."

Although many are afraid to admit it out loud, all signs are pointing to another explosive year for the construction marketplace. The struggle for more channels, better pictures and the roll out of PPV in more systems promises to fuel a high level of sales throughout 1988. And emerging technologies, which will require new electronics and perhaps even more spectrum, may keep things booming well into the 1990s. ■

Industry Growth

YEAR	TVHH	Homes Passed	Basic Subscribers	% of TVHH	Pay Subscribers	% of TVHH
1990E	93,900,000	81,783,000	50,706,000	54	32,959,000	35
1989E	92,800,000	79,109,000	48,256,000	52	30,883,000	33
1988E	91,000,000	75,833,000	45,500,000	50	28,665,000	32
1987E	89,300,000	72,460,000	42,725,000	48	26,022,000	29
1986	87,800,000	69,632,000	41,772,000	47	24,101,000	27
1985	86,304,000	64,571,000	36,120,000	42	21,672,000	25
1984	84,600,000	59,989,000	32,994,000	39	19,764,000	23
1983	83,500,000	53,641,000	30,300,000	36	17,877,000	21
1982	82,800,000	49,100,000	28,200,000	34	15,898,000	19
1981	80,700,000	44,000,000	22,596,000	28	11,804,000	15
1980	77,800,000	37,300,000	18,672,000	24	7,780,000	10
1979	76,300,000	32,700,000	16,023,000	21	5,341,000	7
1978	74,500,000	27,200,000	14,155,000	19	2,980,000	4
1977	73,300,000	24,894,000	13,194,000	18	1,466,000	2
1976	71,114,000	21,989,000	12,094,000	17	505,000	1
1975	69,600,000	19,900,000	11,136,000	16	N/A	N/A

Source: CableProFile Data Base, INTERNATIONAL COMMUNICATIONS RESEARCH

Cable barometer

Television households (TVHH)	87,800,000
Homes passed by cable (HP)	69,632,000
Percent of TVHH passed by cable	79.3%
Basic cable subs	41,772,000
Percent of TVHH with basic cable	47.5%
Percent of HP with basic cable	59.9%
Pay cable subs	24,101,000
Percent of TVHH with pay cable	27.4%
Percent of HP with pay cable	34.6%
Percent of basic subs with pay cable	57.6%

Satellite Lineup

Satcom III-R (RCA Americom)

	Transponder
Arts & Entertainment	24
BET	20
Cable Radio Network	4
Cable Value Network	12
Cinemax (West)	23
ESPN (Blackout)	7
Financial News Network	4
Genesis Storytime	3
HBO (West)	13
Home Shopping Network	22
The Learning Channel	2
Lifetime	17
National Jewish Television	18
QVC Network	8
Reuter Monitor Service	18
Showtime (West)	10
Tempo Sound	6
Tempo Television	6
Tempo Text	6
The Travel Channel	16
Trinity Broadcasting Network	3
TV Decisions	24
USA Network (West)	9

Satcom IV (RCA Americom)

	Transponder
Alternate View Network	10
American Movie Classics	10
America's Value Network	5
Biznet	6
Bravo	2
The Fashion Channel	14
Gospel Music Network	3
Hit Video USA	18
Home Shopping Network 2	1
Home Sports Entertainment	11
Home Team Sports	22
Liberty Broadcasting Network	7
Madison Square Garden Network	6
The Motivation Network	3
Movietime	17
National Black Network	19
New England Sports Network	13
Nickelodeon (West)	4
Nostalgia Channel	21
The Playboy Channel	24
Prime Ticket	20
The Silent Network	23V
SportsChannel-New England	23
SportsVision	9
WPIX—New York	19

Westar III (Western Union)

	Transponder
CNN	5

Westar IV (Western Union)

	Transponder
Atlantic City Horse Racing	6
Cable News Network (CNN)	16
Catholic Telecommunications Network of America	11
National Christian Network	2
International Television Network	10D
Public Broadcasting Service	15, 17, 21, 23
Texas State Network	2

Westar V (Western Union)

	Transponder
Fantasy Unrestricted Network (FUN)	24
FUN Weekend Pay-per-view	24
Moody Broadcasting Network	7D
Pro-Am Sports System (PASS)	8
The University Network	2
Zephyr Weather Information Service	7D

Telstar 303 (AT&T)

	Transponder
American Exxxtasy	19
KTVT (Ft.Worth)	20

Galaxy I (Hughes)

	Transponder
CBN Cable Network	11
Cinemax (East)	19
CNN	7
Country Music Television	13
The Discovery Channel	22
The Disney Channel (East)	4
(West)	24
Electra	18
EPG	3
ESPN	9
GalaVision	20
HBO (East)	23
Headline News	8
The Inspirational Network	17
The Movie Channel (East)	10
(West)	14
The Nashville Network	2
Request Television	12
Seeburg Adult Contemporary	3
Seeburg Contemporary Instrumental	3
Showtime (East)	5
SIN	6
Tempo Text	18
USA Network (East, Central)	21
Video Mall Network	22
WGN	3
WOR-TV	15
WTBS	18

Galaxy III

	Transponder
C-SPAN	24V
C-SPAN II	14V
Eternal Word Television Network	10
Home Premiere Television	16
National Shopping Club	23
The Meadowlands Racing Network	17
MTV Music Television	17
Nick At Night	19
Nickelodeon	19
Sky Merchant	11
Video Hits One (VH1)	15
Viewer's Choice 1+2	21,18

Spacenet I (GTE)

	Transponder
ACTS	15
SelecTV	13

Note: A company name in parentheses following a service or network designates the transponder owner.
Source: International Thomson Communications Inc.

Top 100 MSO's

Rank	MSO	Basic subs	Homes passed	Pay units	
1.	TCI	5,200,000	N/A	N/A	(12/87)
2.	ATC	3,695,000	6,482,000	3,032,000	(12/87)
3.	Continental	1,556,000	2,780,000	1,648,000	(12/87)
4.	Storer Cable Comm.	1,453,000	2,452,900	1,202,000	(12/87)
5.	Cox Cable Comm.	1,438,057	2,480,662	1,487,647	(12/87)
6.	Warner	1,405,349	2,682,884	1,196,763	(12/87)
7.	Comcast	1,200,000	2,300,000	1,070,000	(12/87)
8.	United Cable	1,155,638	2,116,911	871,877	(12/87)
9.	Newhouse Broad.	1,060,759	1,641,576	1,033,936	(12/87)
10.	Viacom Cablevision	1,058,000	N/A	758,000	(12/87)
11.	Heritage Comm.	1,026,224	N/A	786,740	(12/87)
12.	Cablevision Systems	988,000	N/A	N/A	(12/87)
13.	Jones Intercable	978,526	1,516,842	735,776	(12/87)
14.	Times Mirror Cable	918,480	1,616,724	631,225	(12/87)
15.	Sammons Comm.	826,819	1,352,882	638,979	(12/87)
16.	UA Cablesystems	780,593	1,260,974	659,453	(10/87)
17.	Century Comm.	680,400	N/A	N/A	(3/87)
18.	Paragon Comm.	651,000	1,257,000	485,000	(10/87)
19.	Cooke Cablevision	618,900	1,003,105	334,384	(12/87)
20.	Cablevision Industries	591,428	924,106	421,771	(12/87)
21.	Daniels & Assoc.	590,618	1,008,069	652,623	(12/87)
22.	Adelphia Comm.	581,114	883,234	403,349	(12/87)
23.	American Cablesystems	535,038	1,193,034	740,981	(12/87)
24.	Telecable	533,256	842,496	N/A	(12/87)
25.	Rogers Cablesystems	529,708	1,129,097	501,200	(12/87)
26.	Centel Cable	521,428	866,488	365,789	(12/87)
27.	Scripps-Howard	430,990	800,000	280,000	(10/87)
28.	Wometco Cable	395,679	667,726	239,368	(12/87)
29.	Falcon Cable Corp.	379,000	537,000	260,000	(2/87)
30.	Post-Newsweek	374,275	564,466	258,235	(9/87)
31.	Prime Cable	353,362	776,018	423,307	(12/87)
32.	TCA Group	335,023	454,000	130,227	(10/87)
33.	Multimedia	304,610	568,018	263,779	(1/88)
34.	Telemedia	304,610	468,000	137,374	(12/87)
35.	Maclean Hunter Cable	296,969	598,274	408,466	(11/87)
36.	Colony Comm.	274,986	488,960	284,692	(10/87)
37.	Rifkin & Assoc.	260,000	404,000	138,500	(10/87)
38.	Lenfest Group	259,240	531,624	263,397	(11/87)
39.	Western Comm.	249,096	336,410	128,345	(12/87)
40.	TKR Cable	235,204	383,194	280,544	(11/87)
41.	Communications Service	210,000	N/A	N/A	(12/86)
42.	Service Electric Cable	205,000	N/A	N/A	(11/87)
43.	TCI-Taft	197,853	284,423	125,708	(8/87)
44.	Hauser Comm.	190,973	481,503	228,517	(12/87)
45.	Cencom Cable	181,397	N/A	N/A	(12/87)
46.	Media General	162,063	250,978	239,703	(12/87)
47.	Harron Comm.	157,051	225,044	141,674	(11/87)
48.	Greater Media	154,305	247,284	148,645	(12/87)
49.	Sutton Capital Corp.	152,053	276,983	159,921	(11/87)
50.	First Carolina	146,395	248,636	72,656	(10/87)
51.	Palmer Comm.	143,101	200,180	69,368	(10/87)
52.	Armstrong Utilities	141,989	185,812	89,623	(11/87)
53.	Essex Comm.	136,540	206,000	89,387	(11/87)
54.	Marcus Comm.	135,766	177,357	57,957	(11/87)
55.	U.S. Cable Corp.	135,247	297,825	125,028	(11/87)
56.	Summit Comm.	124,900	201,661	95,267	(1/88)
57.	Cable Systems USA	123,826	181,061	38,466	(12/87)
58.	Simmons Comm.	114,816	243,340	114,365	(10/87)
59.	Columbia Intl.	114,232	220,522	112,354	(9/87)
60.	Northland Comm.	114,025	182,985	47,288	(12/87)
61.	Bresnan Comm.	113,783	162,862	45,409	(11/87)
62.	Harte-Hanks Comm.	113,344	263,447	108,890	(12/87)
63.	King Videocable	112,829	N/A	66,503	(10/87)
64.	Sonic Comm.	111,585	225,530	99,659	(8/87)
65.	Multi-Channel TV Cable	110,134	149,695	46,689	(9/87)
66.	Booth Comm.	106,779	153,929	64,481	(10/87)
67.	Scott Cable	106,277	140,000	53,812	(7/87)
68.	Star Cablevision	103,733	168,906	51,794	(11/87)
69.	ML Media Partners	99,556	173,914	80,235	(12/87)
70.	Susquehanna Broad.	94,168	130,531	65,914	(12/87)
71.	James Comm.	92,184	124,732	38,252	(8/87)
72.	McDonald Group	90,079	N/A	N/A	(8/84)
73.	Omega Comm.	90,000	119,125	52,000	(11/87)
74.	WEHCO Video	89,078	127,608	49,088	(12/87)
75.	Coaxial Comm.	84,859	N/A	N/A	(9/87)
76.	United Video	84,034	126,271	71,783	(9/87)
77.	Midcontinent Cable	83,331	69,071	20,861	(11/87)
78.	Pencor Services	83,281	93,100	34,858	(8/87)
79.	C-4 Media	69,482	115,904	33,269	(10/87)
80.	Massda Corp.	69,120	146,034	55,248	(10/87)
81.	Enstar Comm.	68,546	107,341	27,112	(11/87)
82.	Selkirk Comm.	68,000	124,000	55,600	(10/87)
83.	Chambers Comm.	61,471	N/A	N/A	(12/87)
84.	Mountain Cable	59,336	79,850	33,257	(9/87)
85.	Insight Comm.	55,018	124,342	38,934	(10/87)
86.	Cardinal Comm.	54,800	77,800	31,500	(11/87)
87.	North American Comm.	54,606	84,455	16,113	(12/87)
88.	Hearst Comm.	52,892	105,781	47,235	(11/87)
89.	State Cable TV	51,490	N/A	33,812	(12/87)
90.	Helicon Corp.	50,000	77,000	18,214	(12/87)
91.	Dowden Comm.	49,391	89,376	29,563	(8/87)
92.	Galaxy Cablevision	49,006	107,944	27,357	(9/87)
93.	Commonwealth Cable Systems	48,020	77,200	75,400	(11/87)
94.	Joseph Gans Cable TV	46,532	N/A	N/A	(11/86)
95.	New England Cablevision	46,296	65,700	33,561	(10/87)
96.	Prestige Cable	44,558	N/A	N/A	(11/87)
97.	CableAmerica	44,000	N/A	N/A	(1/88)
98.	Telesat Cablevision	43,601	77,831	26,478	(12/87)
99.	Douglas Comm.	43,597	75,400	24,000	(1/88)
100.	Acton Corp.	38,500	130,611	52,773	(10/87)

Subscriber counts are provided by MSOs and systems to *CableVision* magazine. Figures will be updated quarterly unless information is provided by MSOs or systems. Send updates to *CableVision*, Attention: Candace Drake, Cable Stats, 432 Park Avenue South, Suite 1109, New York, NY 10016.

Top 100 Systems

Rank	Location	Operator	Basic subs				
1.	San Diego, CA	Cox Cable	291,914	(12/87)	51.	Tacoma, WA	Viacom	92,000	(12/87)
2.	Woodbury (Long Island), NY	Cablevision Systems Corp.	290,438	(12/87)	52.	Boston, MA	Cablevision Co.	88,324	(12/87)
3.	Manhattan, NY	ATC	242,000	(12/87)	53.	Wichita, KS	Multimedia Cablevision	86,929	(12/87)
4.	San Antonio, TX	Rogers Cablesystems	221,894	(12/87)	54.	Nashville, TN	Viacom	86,000	(12/87)
5.	East Orange, NJ	Maclean Hunter	195,644	(11/87)	55.	Worcester Complex, MA	Greater Media	85,083	(12/87)
6.	Puget Sound, WA	Viacom	195,000	(12/87)	56.	Pittsburgh, PA	TCI	85,000	(12/86)
7.	Honolulu, HI	ATC	187,000	(12/87)	57.	Naples, FL	Palmer Communications	84,307	(10/87)
8.	Phoenix, AZ	Times Mirror	184,921	(12/87)	58.	Greensboro, NC	ATC	84,600	(12/87)
9.	Houston, TX	Warner Cable	183,432	(12/87)	59.	Orange County, CA	Times Mirror	83,504	(12/87)
10.	Hartford/Plainville/Vernon, CT	United Cable	169,333	(12/87)	60.	Harrisburg, PA	Sammons Communications	81,589	(12/87)
11.	Louisville/Jeff. Co., KY	Storer Communications	158,544	(12/87)	61.	Las Vegas, NV	Prime Cable	81,204	(12/87)
12.	Wayne, NJ	UA Cablesystems	158,104	(10/87)	62.	South Texas, TX	Heritage	80,604	(12/87)
13.	Cincinnati, OH	Warner	157,332	(12/87)	63.	Dover, Morristown, NJ	Sammons	80,327	(12/87)
14.	Englewood, CO	United	156,257	(12/87)	64.	Milwaukee, WI	Warner	80,000	(9/87)
15.	Rochester, NY	ATC	154,000	(12/87)	65.	New Orleans, LA	Cox Cable	78,942	(12/87)
16.	Hampton Roads, VA	Cox Cable	153,820	(12/87)	66.	Baton Rouge, LA	Daniels & Assocs.	78,888	(12/87)
17.	Tulsa, OK	United	151,818	(12/87)	67.	South Bend, IN	Heritage	77,963	(12/87)
18.	Atlanta, GA	Prime Cable Corp.	149,697	(12/87)	68.	Akron, OH	Warner	77,202	(12/87)
19.	Fairfax, VA	Media General	147,149	(11/87)	69.	Indianapolis,IN	ATC	77,000	(12/87)
20.	St. Louis Co., MO	Cencom Cable	145,876	(12/87)	70.	Cook County, IL	Continental	76,000	(12/87)
21.	Cherry Hills, NJ	NYT	145,075	(7/87)	71.	Oakland County, MI	United	75,874	(12/87)
22.	Orlando,FL	ATC	143,500	(6/87)	72.	Columbus, OH	Warner	75,774	(12/87)
23.	Jacksonville, FL	Continental Cablevision	143,000	(12/87)	73.	Allentown, PA	Service Electric	75,000	(9/87)
24.	Kansas City, MO	ATC	137,000	(12/87)	74.	Cleveland Heights, OH	Viacom	75,000	(12/87)
25.	Buffalo, NY	Adelphia Communications	131,776	(12/87)	75.	Flint, MI	Comcast	75,000	(10/87)
26.	San Jose/Campbell, CA	Gill Cable	131,600	(1/88)	76.	Melbourne/Cocoa, FL	ATC	74,200	(6/87)
27.	Baltimore County, MD	Comcast	130,000	(10/87)	77.	Medford Complex (Boston Suburbs), MA	Warner	74,043	(12/87)
28.	Manhattan, NY	Paragon Cable	126,000	(9/87)	78.	Providence/Warwick, RI	Times Mirror	73,415	(12/87)
29.	Memphis/W. Memphis, TN	ATC	126,000	(12/87)	79.	Omaha, NE	Cox Cable	72,825	(12/87)
30.	Charlotte, NC	ATC	125,000	(12/87)	80.	Contra Costa Co, CA	Televents	72,252	(10/87)
31.	Seattle, WA	Tele-Communications Inc	125,000	(12/86)	81.	Fayetteville, NC	ATC	72,000	(12/87)
32.	Long Island, NY	Viacom	119,000	(12/87)	82.	Ocean County, NJ	Adelphia	71,744	(12/87)
33.	San Diego, CA	ATC	119,000	(12/87)	83.	Lower Fairfield Co., CT	Cablevision Co.	71,168	(12/87)
34.	San Francisco, CA	Viacom	117,000	(12/87)	84.	Oklahoma City, OK	Cox Cable	70,366	(12/87)
35.	Austin, TX	ATC	115,000	(12/87)	85.	Santa Monica, CA	Century	69,900	(12/86)
36.	Pompano, FL	American Cablesystems	111,422	(11/87)	86.	Des Moines, IA	Heritage	69,721	(12/87)
37.	Warren, NJ	TKR	107,511	(11/87)	87.	Little Rock, AR	Storer	69,121	(12/87)
38.	Richmond, VA	Continental	107,000	(12/87)	88.	Hillsborough, FL	Paragon	69,000	(9/87)
39.	Toledo, OH	Blade Communications	105,470	(10/87)	89.	St. Petersburg, FL	Paragon	69,000	(9/87)
40.	San Juan, PR	ML Media Partners	104,757	(12/86)	90.	Lincoln, RI	Heritage	68,608	(12/87)
41.	Jefferson Parish/Kenner, LA	Cox Cable	100,879	(12/87)	91.	Greater Bridgeport, CT	Cablevision Co.	68,506	(12/87)
42.	Dallas, TX	Heritage	100,355	(12/87)	92.	New Haven, CT	Storer	67,363	(12/87)
43.	Southeast Michigan	Comcast	100,031	(10/87)	93.	Birmingham, AL	ATC	67,000	(12/87)
44.	Wilmington, DE	Heritage	99,150	(12/87)	94.	Syracuse (suburbs), NY	NewChannels Corp.	66,952	(12/87)
45.	Grand Rapids, MI	UA Cablesystems	96,817	(10/87)	95.	Winston-Salem, N.C.	Summit Communications	66,245	(1/88)
46.	Escondido, CA	Times Mirror	95,374	(12/87)	96.	El Paso, TX	Paragon	66,000	(9/87)
47.	Raleigh/Durham, N.C.	ATC	95,000	(12/87)	97.	Sarasota, FL	Storer	65,155	(12/87)
48.	Dade/Broward, FL	Storer	94,173	(12/87)	98.	Monterey, CA	Western	64,987	(12/87)
49.	Pinellas County, FL	Vision Cable	93,920	(9/87)	99.	Charleston, S.C.	Storer	64,252	(12/87)
50.	Indianapolis, IN	Comcast	92,000	(10/87)	100.	W.San Fernando Valley, CA	Cablevision Industries	63,580	(12/87)